

What Is Claimed Is:

- 8/10/83
1. An image distribution system comprising:
an image sensing apparatus controllable by an
5 external device;
an image transmission apparatus having a function
of digitizing and transmitting an image signal acquired
by said image sensing apparatus via a network and a
function of issuing authorization to control said image
10 sensing apparatus;
an image reception apparatus which receives and
displays the transmitted digitized image signal, further
requests to control said image sensing apparatus; and
a network connecting said image transmission
15 apparatus and said image reception apparatus,
wherein, in a case where said image transmission
apparatus issues the authorization to control said image
sensing apparatus to said image reception apparatus and
communication between said image reception apparatus and
20 said image transmission apparatus is undesirably
terminated while said image reception apparatus holds
the authorization, by restoring the communication within
a predetermined period, said image reception apparatus
is allowed to continuously control said image sensing
25 apparatus under the same conditions as at the time of
the undesired termination.

2. The image distribution system according to claim 1, wherein at least one of panning operation, tilting operation, and zooming operation of said image sensing apparatus is controlled by said image reception apparatus.

3. The image distribution system according to claim 1, wherein said image transmission apparatus comprises certification means for identifying whether or not said image reception apparatus is allowed to control said image sensing apparatus.

4. The image distribution system according to claim 1, wherein said image transmission apparatus immediately issues the authorization to control said image sensing apparatus to said image reception apparatus when said image reception apparatus restores the communication within the predetermined period after the undesired termination of the communication.

5. The image distribution system according to claim 1, wherein, in a case where said image reception apparatus restores the communication within the predetermined period after the undesired termination and another image reception apparatus holds authorization to

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control said image sensing apparatus at the time of the restoration of the communication, said image transmission apparatus gives priority to said restored image reception apparatus to receive the authorization to control said image sensing apparatus after the other image reception apparatus releases the authorization to control said image sensing apparatus.

6. The image distribution system according to claim 1, wherein, in a case where said image reception apparatus restores the communication within the predetermined period after the undesired termination and another image reception apparatus holds authorization to control said image sensing apparatus at the time of the restoration of the communication, said image transmission apparatus suspends the authorization issued to the other image reception apparatus and issues authorization to control said image sensing apparatus to said restored image reception apparatus.

7. The image distribution system according to claim 1, said image transmission apparatus comprises administration means for when a request for authorization to control said image sensing apparatus is received after the undesired termination, determining whether or not an image reception apparatus which

requested the authorization is said image reception apparatus whose communication was undesirably terminated while holding an authorization.

5 8. The image distribution system according to claim 7, wherein said administration means performs the determination on the basis of an IP (internet protocol) address and a user name of the image reception apparatus which requested the authorization.

10 9. The image distribution system according to claim 7, wherein said administration means performs the determination on the basis of a key issued by said image transmission apparatus and a password.

15 10. The image distribution system according to claim 5, wherein, in a case where said image reception apparatus restores the communication within the predetermined period after the undesired termination, said image transmission apparatus issues the authorization to control said image sensing apparatus after restoring conditions of said image sensing apparatus to the conditions at the time of the undesired termination.

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11. The image distribution system according to claim 6, wherein, in a case where said image reception apparatus restores the communication within the predetermined period after the undesired termination, said image transmission apparatus issues the authorization to control said image sensing apparatus after restoring conditions of said image sensing apparatus to the conditions at the time of the undesired termination.

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12. The image distribution system according to claim 6, wherein said image transmission apparatus issues the authorization to control said image sensing apparatus to said restored image sensing apparatus after suspending the authorization issued to the other image sensing apparatus if said restored image reception apparatus has higher priority than the other image reception apparatus.

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13. The image distribution system according to claim 12, wherein said priority is determined on the basis of time when the image reception apparatuses start controlling said image sensing apparatus.

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14. The image distribution system according to claim 12, wherein, when the image distribution system

charges an image reception apparatus for the authorization to control said image sensing apparatus, said priority is determined on the basis of ranks given to the image reception apparatuses in a charging system.

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15. The image distribution system according to claim 1, wherein said image transmission apparatus comprises authorization period administration means for setting a period allowed for said image reception apparatus to hold the authorization at the time of restoration of communication after the undesired termination.

16. The image distribution system according to claim 15, wherein said authorization period administration means sets a period $T-t$ for said image reception apparatus at the time of restoration of communication, where T indicates a period which is allowed for an image reception apparatus to hold authorization and t indicates a period elapsed by the time of the termination.

17. The image distribution system according to claim 15, wherein said authorization period administration means sets a period $T-t-s$ for said image reception apparatus at the time of restoration of

communication, where T indicates a period which is
allowed for an image reception apparatus to hold
authorization, t indicates a period elapsed by the time
of the termination, and s indicates a period elapsed
5 since the termination of the communication until the
restoration of the communication.

18. The image distribution system according to
claim 5, wherein said image transmission apparatus
10 informs said restored image reception apparatus of time
to take until said image transmission apparatus issues
the authorization to control said image sensing
apparatus to said restored image reception apparatus,
and said image reception apparatus has a function of
15 indicating the notified time.

19. A control method for controlling an image
distribution system having an image sensing apparatus
controllable by an external device, an image
20 transmission apparatus having a function of digitizing
and transmitting an image signal acquired by said image
sensing apparatus via a network and a function of
issuing authorization to control said image sensing
apparatus, an image reception apparatus which receives
25 and displays the transmitted digitized image signal,
further requests to control said image sensing apparatus,

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and a network connecting said image transmission apparatus and said image reception apparatus,

wherein, in a case where the authorization to control said image sensing apparatus is issued to said
5 image reception apparatus and communication between said image reception apparatus and said image transmission apparatus is undesirably terminated while said image reception apparatus holds the authorization, said image reception apparatus is allowed to continuously control
10 said image sensing apparatus under the same conditions as at the time of the undesired termination if said image reception apparatus restores communication within a predetermined period.

15 20. The control method according to claim 19, comprising a certification step of identifying whether or not said image reception apparatus is allowed to control said image sensing apparatus.

20 21. The control method according to claim 19, comprising a step of immediately issuing the authorization to control said image sensing apparatus to said image reception apparatus when said image reception apparatus restores the communication within the
25 predetermined period after the undesired termination of the communication.

22. The control method according to claim 19,
comprising, in a case where said image reception
apparatus restores the communication within the
5 predetermined period after the undesired termination and
another image reception apparatus holds authorization to
control said image sensing apparatus at the time of the
restoration of the communication, a step of giving
priority to said restored image reception apparatus to
10 receive the authorization to control said image sensing
apparatus after the other image reception apparatus
releases the authorization to control said image sensing
apparatus.

15 23. The control method according to claim 19,
comprising:

a step of suspending the authorization issued to
another image reception apparatus in a case where said
image reception apparatus restores the communication
20 within the predetermined period after the undesired
termination and the other image reception apparatus
holds authorization to control said image sensing
apparatus at the time of the restoration of the
communication; and

25 a step of issuing authorization to control said
image sensing apparatus to said restored image reception

apparatus after suspending the authorization issued to the other image reception apparatus.

24. The control method according to claim 19
5 comprising:

a reception step of receiving a request for authorization to control said image sensing apparatus after the undesired termination; and

10 a determination step of determining whether or not an image reception apparatus which requested the authorization is said image reception apparatus whose communication was undesirably terminated while holding an authorization.

15 25. The control method according to claim 24, wherein, in said determination step, the determination is performed on the basis of an IP (internet protocol) address and a user name of the image reception apparatus which requested the authorization.

20 26. The control method according to claim 24, wherein, in said determination step, the determination is performed on the basis of a key issued at said image transmission apparatus and a password.

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27. The control method according to claim 22,
comprising:

a condition restoration step of restoring
conditions of said image sensing apparatus to the
5 conditions at the time of the undesired termination in a
case where said image reception apparatus restores the
communication within the predetermined period after the
undesired termination; and

a step of issuing the authorization to control said
10 image sensing apparatus after said condition restoration
step.

28. The control method according to claim 23,
comprising:

15 a condition restoration step of restoring
conditions of said image sensing apparatus to the
conditions at the time of the undesired termination in a
case where said image reception apparatus restores the
communication within the predetermined period after the
20 undesired termination; and

a step of issuing the authorization to control said
image sensing apparatus after said condition restoration
step.

25 29. The control method according to claim 23,
comprising a step of determining whether or not said

restored image reception apparatus has higher priority than the other image reception apparatus,

wherein in said suspending step, the authorization issued to the other image reception apparatus is
5 suspended when said restored image reception apparatus has higher priority than the other image reception apparatus.

30. The control method according to claim 29,
10 wherein said priority is determined on the basis of time when the image reception apparatuses start controlling said image sensing apparatus.

31. The control method according to claim 29,
15 wherein, when an image reception apparatus is charged for the authorization to control said image sensing apparatus, said priority is determined on the basis of ranks given to the image reception apparatuses in a charging system.

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32. The control method according to claim 19 comprising an authorization period administration step of setting a period allowed for said image reception apparatus to hold the authorization at the time of
25 restoration of communication after the undesired termination.

33. The control method according to claim 32,
wherein, in said authorization period administration
step, a period $T-t$ is set for said image reception
5 apparatus at the time of restoration of communication,
where T indicates a period which is allowed for an image
reception apparatus to hold authorization and t
indicates a period elapsed by the time of the
termination.

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34. The control method according to claim 32,
wherein, in said authorization period administration
step, a period $T-t-s$ is set for said image reception
apparatus at the time of restoration of communication,
15 where T indicates a period which is allowed for an image
reception apparatus to hold authorization, t indicates a
period elapsed by the time of the termination, and s
indicates a period elapsed since the termination of the
communication until the restoration of the communication.

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35. The control method according to claim 22
comprising:

a step of informing said restored image reception
apparatus of time to take until said image transmission
25 apparatus issues the authorization to control said image

sensing apparatus to said restored image reception apparatus; and

a step of indicating the notified time in said restored image reception apparatus.

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36. A computer program product comprising a computer usable medium having computer readable program code means embodied in said medium of a control method for controlling an image distribution system having an image sensing apparatus controllable by an external device, an image transmission apparatus having a function of digitizing and transmitting an image signal acquired by said image sensing apparatus via a network and a function of issuing authorization to control said image sensing apparatus, an image reception apparatus which receives and displays the transmitted digitized image signal, further requests to control said image sensing apparatus, and a network connecting said image transmission apparatus and said image reception apparatus,

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said product including computer readable program code means for, in a case where the authorization to control said image sensing apparatus is issued to said image reception apparatus and communication between said image reception apparatus and said image transmission apparatus is undesirably terminated while said image

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reception apparatus holds the authorization, enabling
said image reception apparatus to continuously control
said image sensing apparatus under the same conditions
as at the time of the undesired termination if said
5 image reception apparatus restores communication within
a predetermined period.

37. The computer program product according to
claim 36, further comprising computer readable program
10 code means of a certification step for identifying
whether or not said image reception apparatus is allowed
to control said image sensing apparatus.

38. The computer program product according to
15 claim 36, comprising computer readable program code
means for immediately issuing the authorization to
control said image sensing apparatus to said image
reception apparatus when said image reception apparatus
restores the communication within the predetermined
20 period after the undesired termination of the
communication.

39. The computer program product according to
claim 36, comprising computer readable program code
25 means for, in a case where said image reception
apparatus restores the communication within the

predetermined period after the undesired termination and another image reception apparatus holds authorization to control said image sensing apparatus at the time of the restoration of the communication, giving priority to
5 said restored image reception apparatus to receive the authorization to control said image sensing apparatus after the other image reception apparatus releases the authorization to control said image sensing apparatus.

10 40. The computer program product according to claim 36, comprising:

computer readable program code means for suspending the authorization issued to another image reception apparatus in a case where said image reception apparatus
15 restores the communication within the predetermined period after the undesired termination and the other image reception apparatus holds authorization to control said image sensing apparatus at the time of the restoration of the communication; and

20 computer readable program code means for issuing authorization to control said image sensing apparatus to said restored image reception apparatus after suspending the authorization issued to the other image reception apparatus.

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41. The computer program product according to claim 36 comprising:

computer readable program code means for receiving
a request for authorization to control said image
5 sensing apparatus after the undesired termination; and
computer readable program code means for
determining whether or not an image reception apparatus
which requested the authorization is said image
reception apparatus whose communication was undesirably
10 terminated while holding an authorization.

42. The computer program product according to claim 39, comprising:

computer readable program code means for restoring
15 conditions of said image sensing apparatus to the
conditions at the time of the undesired termination in a
case where said image reception apparatus restores the
communication within the predetermined period after the
undesired termination; and
20 computer readable program code means for issuing
the authorization to control said image sensing
apparatus after restoring the conditions.

43. The computer program product according to
25 claim 40, comprising:

computer readable program code means for restoring conditions of said image sensing apparatus to the conditions at the time of the undesired termination in a case where said image reception apparatus restores the communication within the predetermined period after the undesired termination; and

computer readable program code means for issuing the authorization to control said image sensing apparatus after restoring the conditions.

44. The computer program product according to claim 40, comprising computer readable program code means for determining whether or not said restored image reception apparatus has higher priority than the other image reception apparatus,

wherein the authorization issued to the other image reception apparatus is suspended when said restored image reception apparatus has higher priority than the other image reception apparatus.

45. The computer program product according to claim 36 comprising computer readable program code means for setting a period allowed for said image reception apparatus to hold the authorization at the time of restoration of communication after the undesired termination.

46. The computer program product according to claim 39 comprising:

computer readable program code means for informing
5 said restored image reception apparatus of time to take
until said image transmission apparatus issues the
authorization to control said image sensing apparatus to
said restored image reception apparatus; and

computer readable program code means for indicating
10 the notified time in said restored image reception
apparatus.

47. An image transmission apparatus, used in
connection with an image sensing apparatus controllable
15 by an external device, having a function of digitizing
and transmitting an image signal acquired by said image
sensing apparatus via a network and a function of
issuing authorization to control said image sensing
apparatus,

20 wherein, in a case where the image transmission
apparatus issues the authorization to control said image
sensing apparatus to an external apparatus and
communication between the external apparatus and the
image transmission apparatus is undesirably terminated
25 while the external apparatus holds the authorization,
the image transmission apparatus allows said external

apparatus to continuously control said image sensing apparatus under the same conditions as at the time of the undesired termination if the external apparatus restores the communication within a predetermined period.

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48. The image transmission apparatus according to claim 47 comprising certification means for identifying whether or not said external apparatus is allowed to control said image sensing apparatus.

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49. The image transmission apparatus according to claim 47, wherein the image transmission apparatus immediately issues the authorization to control said image sensing apparatus to said external apparatus when said external apparatus restores the communication within the predetermined period after the undesired termination of the communication.

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50. The image transmission apparatus according to claim 47, wherein, in a case where said external apparatus restores the communication within the predetermined period after the undesired termination and another external apparatus holds authorization to control said image sensing apparatus at the time of the restoration of the communication, the image transmission apparatus gives priority to said restored external

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apparatus to receive the authorization to control said image sensing apparatus after the other external apparatus releases the authorization to control said image sensing apparatus.

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51. The image transmission apparatus according to claim 47, wherein, in a case where said external apparatus restores the communication within the predetermined period after the undesired termination and another external apparatus holds authorization to control said image sensing apparatus at the time of the restoration of the communication, the image transmission apparatus suspends the authorization issued to the other external apparatus and issues authorization to control said image sensing apparatus to said restored external apparatus.

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52. The image transmission apparatus according to claim 47 comprising administration means for, when a request for authorization to control said image sensing apparatus is received after the undesired termination, determining whether or not an external apparatus which requested the authorization is said external apparatus whose communication was undesirably terminated while holding an authorization.

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53. The image transmission apparatus according to claim 52, wherein said administration means performs the determination on the basis of an IP (internet protocol) address and a user name of the external apparatus which requested the authorization.

54. The image transmission apparatus according to claim 52, wherein said administration means performs the determination on the basis of a key issued by the image transmission apparatus and a password.

55. The image transmission apparatus according to claim 50, wherein, in a case where said external apparatus restores the communication within the predetermined period after the undesired termination, the image transmission apparatus issues the authorization to control said image sensing apparatus after restoring conditions of said image sensing apparatus to the conditions at the time of the undesired termination.

56. The image transmission apparatus according to claim 51, wherein, in a case where said external apparatus restores the communication within the predetermined period after the undesired termination, the image transmission apparatus issues the

authorization to control said image sensing apparatus after restoring conditions of said image sensing apparatus to the conditions at the time of the undesired termination.

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57. The image transmission apparatus according to claim 51, wherein the image transmission apparatus issues the authorization to control said image sensing apparatus to said restored image sensing apparatus after suspending the authorization issued to the other image sensing apparatus if said restored external apparatus has higher priority than the other external apparatus.

58. The image transmission apparatus according to claim 57, wherein said priority is determined on the basis of time when the external apparatuses start controlling said image sensing apparatus.

59. The image transmission apparatus according to claim 57, wherein, when the image transmission apparatus charges an external apparatus for the authorization to control said image sensing apparatus, said priority is determined on the basis of ranks given to the external apparatuses in a charging system.

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60. The image transmission apparatus according to claim 47 comprising authorization period administration means for setting a period allowed for said external apparatus to hold the authorization at the time of
5 restoration of communication after the undesired termination.

61. The image transmission apparatus according to claim 60, wherein said authorization period
10 administration means sets a period $T-t$ for said external apparatus at the time of restoration of communication, where T indicates a period which is allowed for an external apparatus to hold authorization and t indicates a period elapsed by the time of the termination.

15 62. The image transmission apparatus according to claim 60, wherein said authorization period administration means sets a period $T-t-s$ for said external apparatus at the time of restoration of
20 communication, where T indicates a period which is allowed for an external apparatus to hold authorization, t indicates a period elapsed by the time of the termination, and s indicates a period elapsed since the
25 termination of the communication until the restoration of the communication.

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63. The image transmission apparatus according to
claim 50, wherein the image transmission apparatus
informs said restored external apparatus of time to take
until the image transmission apparatus issues the
5 authorization to control said image sensing apparatus to
said restored external apparatus.

64. The image transmission apparatus according to
claim 47, wherein the image transmission apparatus
10 includes said image sensing apparatus.